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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/748,505
Filing Date: December 30, 2003
Appellant(s): WEISSMAN, ADAM J.

Weissman, Adam J.
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 10/25/2007 appealing from the Office action

mailed 6/25/2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2003/0088715	Surajit Chaudhuri et al.
6,834,290	Thomas Pugh et al.
6,847,966	Matthew S. Sommer et al.
5,915,249	Graham Spencer

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 9, 16 – 18, 26, 28 – 29, 30 – 31, 33 and 34 are rejected under 35

U.S.C. 102(e) as being anticipated by U.S. Publication Number 2003/0088715

issued to Surajit Chaudhuri et al (hereinafter 'Chaudhuri").

Regarding claim 1, Chaudhuri discloses a method, comprising:

selecting from an inverted index at least (Figure 4, paragraph 31 lines 3 – 5,

paragraph 32 lines 3 – 4, paragraph 33 lines 3 – 6, et seq.)

a first item entry comprising a first listing of articles that are associated

with a first item and

a second item entry comprising a second listing of articles that are

associated with a second item, wherein the second item differs from the first item

(explained below in Response to Argument section);

determining whether to compress the second item entry into the first item entry

(paragraph 35 lines 2 – 3, 15 – 17, et seq.); and

compressing the second item entry into the first item entry based at least in part

on the determination (Figures 4 and 5, paragraph 35 lines 5 – 9, et seq.).

Regarding claim 9, Chaudhuri discloses the items comprise one or more of

words, concepts or images (paragraph 31 lines 3 – 5, paragraph 34 lines 2 – 3, et seq.).

Claim 16 is rejected based on the same rationale discussed above.

Regarding claim 17, Chaudhuri discloses that the plurality of item entries

comprises three or more item entries (Figure 4, et seq.).

Claims 18 and 28 are essentially the same as claim 1 except that it sets forth the limitation as an article rather than a method, therefore rejected based on the same rationale discussed in claim 1 rejection.

Regarding claim 26, Chaudhuri discloses the items comprise one or more of words, concepts or images (paragraph 31 lines 3 – 5, paragraph 34 lines 2 – 3, et seq.).

Regarding claim 29, Chaudhuri discloses that the plurality of item entries comprises three or more item entries (Figure 4, et seq.).

Regarding claim 30, Chaudhuri discloses,

the first item comprises a first word (paragraph 34 lines 2 – 3, et seq.);

the articles in the first listing are associated with the first item by virtue of the first word appearing in the articles in the first listing (paragraph 34 lines 6 – 7, paragraph 33 lines 5 – 6, paragraph 42 line 10 – paragraph 43 line 3, et seq.); and

the first word does not appear in the second item (each of the hash values represents different keyword).

Claim 33 is rejected based on the same rationale discussed above.

Regarding claim 31, Chaudhuri discloses,

the first item comprises a first concept (paragraph 34 lines 2 – 3, et seq.);

the second item comprises a second concept (paragraph 34 lines 2 – 3, et seq.);

the articles in the first listing are associated with the first item by virtue of the first concept appearing in the articles in the first listing (paragraph 34 lines 6 – 7, paragraph 33 lines 5 – 6, paragraph 42 line 10 – paragraph 43 line 3, et seq.);

the articles in the second listing are associated with the second item by virtue of

the second concept appearing in the articles in the second listing (paragraph 34 lines 6

– 7, paragraph 33 lines 5 – 6, paragraph 42 line 10 – paragraph 43 line 3, et seq.); and

determining whether to compress the second item entry into the first item entry

comprises determining whether the first concept is related to the second concept

(paragraph 35 lines 2 – 3, 15 – 17, et seq.).

Claim 34 is rejected based on the same rationale discussed above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set
forth in section 102 of this title, if the differences between the subject matter sought to be patented and
the prior art are such that the subject matter as a whole would have been obvious at the time the
invention was made to a person having ordinary skill in the art to which said subject matter pertains.
Patentability shall not be negatived by the manner in which the invention was made.

Claims 2, 8, 10, 19, 25, and 27 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Chaudhuri in view of U.S. Patent Number 6,834,290 issued to

Thomas Pugh et al (hereinafter "Pugh").

Regarding claim 2, Chaudhuri discloses the method of claim 1.

Chaudhuri does not explicitly disclose determining a cost-benefit ratio, and

comparing the cost-benefit ratio with an acceptable value.

However, Pugh discloses determining a cost-benefit ratio (column 3 lines 23 – 25,

et seq.), and comparing the cost-benefit ratio with a value (column 3 lines 25 – 30, et

seq.). It would have been obvious to a person of ordinary skill in the data processing art

to combine the two references because Pugh's use of cost-benefit ration would have

enabled Chaudhuri's system to provide a cost-effective reorganization plan for

reorganizing data of a database to save memory space.

Regarding claim 8, Pugh discloses a benefit in the cost-benefit ratio comprises a

representation of the amount of memory saved (column 10 lines 39 – 43, et seq.).

Regarding claim 10, Pugh discloses the value is predetermined (column 9 lines

37 – 40, et seq.).

Claims 19, 25, and 27 are essentially the same as claims 2, 8, and 10 except

they set forth the limitations as an article rather than a method, therefore rejected based

on the same rationale discussed in claims 2, 8, and 10 rejections.

Claims 32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Chaudhuri in view of U.S. Patent Number 6,847,966 issued to Matthew S.

Sommer et al. (hereinafter "Sommer").

Regarding claim 32, Chaudhuri discloses the method of claim 31.

Chaudhuri does not explicitly disclose determining whether the first concept is

related to the second concept comprises accessing a semantic network that stores

relationship between concepts.

However, Sommer discloses determining whether the first concept is related to

the second concept comprises accessing a semantic network that stores relationship

between concepts in column 6 lines 25 – 46, et seq. At the time of the present invention,

it would have been obvious to a person of ordinary skill in the data processing art to

combine the two references since the combination would have enabled the system to

provide relevant data without user intervention (i.e. understanding of a particular

subject), therefore saving user's time as well as reducing processing time to provide

quick and reliable data/document search and retrieval system.

Claim 35 is rejected based on the same rationale discussed above.

Claims 3 – 7, 11 – 15, 20 – 24 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Chaudhuri and Pugh, further in view of U.S. Patent Number

5,915,249 issued to Graham Spencer (hereinafter "Spencer").

Regarding claim 3, Chaudhuri and Pugh disclose the method of claim 2

(including the first item entry and the second item entry).

Chaudhuri and Pugh do not explicitly disclose an item value for each article that

the item appears in (in the first listing and the second listing).

However, Spencer discloses an item value for each article that the item appears

in (column 1 lines 51 – 55, column 3 lines 14 – 30; 56 – 57, et seq.). It would have been

obvious to a person of ordinary skill in the data processing art to combine the

aforementioned references because Spencer's item value would have enabled

Chaudhuri and Pugh's system to provide a database structure and query processing

technique that efficiently handles queries in very large databases, and accounts for the

significance and repetitiveness of certain terms in the articles.

Regarding claim 4, Spencer discloses the item value comprises representations

of strengths of the item in the articles (column 1 lines 53 – 55, column 3 line 30, et seq.).

Regarding claim 5, Spencer discloses the item value comprises representations of whether the items appear in the articles (column 1 lines 53 – 55, column 3 line 30, et seq.).

Regarding claim 6, Chaudhuri discloses compression and compressed entry. Pugh discloses a cost for the cost-benefit ratio comprises a representation of a loss in precision or the additional processing time required (column 2 lines 21 – 22, column 10 lines 52 – 56, et seq.).

Regarding claim 7, Chaudhuri discloses the first and second item entries, and compression. Pugh discloses a cost for the cost-benefit ratio comprises determining how much the data have to change (column 10 lines 52 – 56, et seq.).

Claims 20 – 24 are essentially the same as claims 3 – 7 except they set forth the limitations as an article rather than a method, therefore rejected based on the same rationale discussed in claims 3 – 7 rejections.

Regarding claim 11, Chaudhuri, Pugh, and Spencer disclose a method, comprising:

selecting from an inverted index at least (Chaudhuri: Figure 4, paragraph 31 lines 3 – 5, paragraph 32 lines 3 – 4, paragraph 33 lines 3 – 6, et seq.),

a first item entry comprising a first listing of articles that are associated with a first item and an item value for each article in the first listing (Chaudhuri: Figure 4 (C1 and C2 are the "listing of articles" for V2), Paragraph 34 lines 6 – 7, et seq., Spencer: column 1 lines 51 – 55, column 3 lines 14 – 30; 56 – 57, et seq.), and

a second item entry comprising a second listing of articles that are

associated with a second item and an item value for each article in the second

listing, wherein the second item differs from the first item (Chaudhuri: Figure 4

(C1 and C2 are the "listing of articles" for V3), Paragraph 34 lines 6 – 7, et seq.,

Spencer: column 1 lines 51 – 55, column 3 lines 14 – 30; 56 – 57, et seq.);

determining a cost-benefit ratio for compressing the second item entry into the

first item entry (Pugh: column 3 lines 23 – 25, et seq.);

comparing the cost-benefit ration with a value to determine if the cost-benefit

ration is acceptable (Pugh: column 3 lines 25 – 30, et seq.); and

if the cost-benefit ratio is acceptable, compressing the second item entry into the

first item entry (Chaudhuri: Figures 4 and 5, paragraph 35 lines 5 – 9, et seq.).

Regarding claim 12, Chaudhuri discloses the first and second item entries, and

compression. Pugh discloses a cost for the cost-benefit ratio comprises determining

how much the data have to change (column 10 lines 52 – 56, et seq.).

Regarding claim 13, Chaudhuri discloses the first and second item entries, and

compression. Pugh discloses a benefit for the cost-benefit ratio is a representation of

the amount of memory saved (column 10 lines 39 – 43, et seq.).

Regarding claim 14, Pugh discloses the value is predetermined (column 9 lines

37 – 40, et seq.).

Regarding claim 15, Chaudhuri discloses the item comprise one or more of

words, concepts or images (paragraph 31 lines 3 – 5, paragraph 34 lines 2 – 3, et seq.).

(10) Response to Argument

Appellant's arguments with respect to 35 U.S.C. 102 and 103 rejections have

been fully considered but are not persuasive. Examiner respectfully traverses the

Appellant's arguments for the following reasons:

1. Regarding claims 1 and 18, Appellant mainly argues that Chaudhuri fails to

teach or suggest "the first item entry comprises a first listing of articles associated with a

first item," "the second item entry comprises a second listing of articles associated with

a second item" and "the second item differs from the first item." Appellant argues that

since column ID's C1 and C2 are plainly shown in association with hash value V2 in

different entries (See Figure 4), each entry only includes a single column ID rather than

a listing of articles. Examiner disagrees with this assertion because recording the

associated articles in two cells is not distinguishable over recording them in a single cell,

since it is evident that both articles are associated with a single item. Also, the term

"entry" has a broad range of interpretation, thus its interpretation is not only restricted to

a single cell/row/column in a table. Finally, the first item and the second item are in fact

different in Chaudhuri, since each of the hash values V2 and V3 represents a disparate

keyword. While the items V2 and V3 are different hash values, their contents (in other

words, associated articles) are the same, thus resulting in compression of those two

contents by having a single value or data which represents the articles in common. This

step could be interpreted as equivalent to the present claim's "compressing the second

item entry into the first item entry". For the sake of clarity, the table presented in the previous Office Action is reproduced here for convenience:

Claim limitations	Features in Chaudhuri	Location	Explanation
First item entry comprising a first listing of articles	Multiple column ID's associated with first single hash value	Figure 4 (C1 and C2 are the "listing of articles" for the item V2), Paragraph 34 lines 6 – 7, et seq.	The multiple column ID's indicate the locations of data or data tables that contain the keyword represented by the hash value V2.
First item	First single hash value	Figure 4 (V2), paragraph 34 lines 6 – 7, et seq.	The hash value V2 represents a keyword, and is associated with the locations of data or data tables containing the keyword.
Second entry comprising a second listing of articles	Multiple column ID's associated with second single hash value	Figure 4 (C1 and C2 are the "listing of articles" for the item V3), Paragraph 34 lines 6 – 7, et seq.	The multiple column ID's indicate the locations of data or data tables that contain the keyword represented by the hash value V3.
Second item, wherein the second item differs from the first item	Second single hash value	Figure 4 (V3 is clearly different from V2, since they are two different hash values), paragraph 34 lines 6 – 7, et seq.	The hash value V3 represents another keyword, and is associated with the locations of data or data tables containing the keyword.
Compressing the second item entry	Six rows in the uncompressed table are	Paragraph 35	The recurring column ID's are compressed by the use of the

into the first item entry	replaced with three rows in the compressed table, which results in a total size less than the uncompressed symbol table.		compressed hash table, so that the number of rows as well as the overall size of the table is reduced to smaller size than the previous uncompressed table.

2. Regarding claims 16 and 28, Appellant makes the same arguments made with regards to claims 1 and 18. These points have been addressed above.

3. Regarding claims 30 and 33, Appellant makes the same arguments made with regards to claims 1 and 18. These points have been addressed above. Also, Appellant's allegation that only entries that have identical hash values are compressed into each other is clearly false in view of Chaudhuri's disclosure. In fact, entries that have different hash values (V2 and V3 are two different hash values) but with identical listing of articles associated with them (V2 is associated with C1 and C2, and V3 is also associated with C1 and C2) are compressed into each other.

4. Regarding claims 31 and 34, Appellant makes the same arguments made with regards to claims 30 and 33. These points have been addressed above.

5. Regarding claim 11, Appellant mainly argues that Pugh and Spencer do nothing to remedy the deficiencies in Chaudhuri. Since the Examiner explained why

Chaudhuri clearly teaches or suggests these alleged deficiencies, Pugh and Spender do not need to remedy these deficiencies. Another point that Appellant makes is that none of the cited references teaches of suggests determining a cost-benefit ratio for compression of item entries. Examiner respectfully submits that the allegation is false since Pugh clearly and rather explicitly discloses the concept of determining cost-benefit ratio in column 2 lines 50 – 52, column 3 lines 23 – 30. Pugh states that his method comprises determining the benefits and costs of reorganizing one or more objects within a database and ordering the reorganization of the one or more objects based on the benefits and costs, thereby reorganizing objects having a higher benefit and a correspondingly lower cost before reorganizing objects having a lower benefit and a corresponding higher cost. Appellant also asserts that Appellant is at a loss to understand why Pugh or Spender would turn to Chaudhuri's compression of item entries in an inverted index. Examiner respectfully submits that such assertion is irrelevant and wrongly applied to the current rejection. What really matters is why would a person of ordinary skill in the data processing art would turn to Pugh or Spencer in order to modify Chaudhuri's invention to incorporate features disclosed in Pugh or Spencer, not the other way around. Both Pugh and Spencer add significant benefits to Chaudhuri's invention as explained in the previous Office Action (See Page 8 lines 1- 3 and page 9 lines 16 – 18 of the Non-Final Rejection dated 6/25/2007). Finally, Examiner submits that all of the cited references are in the same field of endeavor, namely saving storage or memory capacity in a database comprising tables and indexes.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the

Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Sangwoo Ahn

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